

WHAT IS CLAIMED IS:

1. An encoded data generation method for generating JPEG2000 encoded data in a client which comprises storage means that stores fragmentary first encoded data of encoded data managed by a server, comprising:
 - 5 a calculation step of calculating short second encoded data on the basis of encoded data required to generate the JPEG2000 encoded data in the client, and the first encoded data stored in the storage means;
 - 10 a request step of requesting of the server the calculated second encoded data;
 - an acquisition step of acquiring the second encoded data from the server;
 - a storage step of storing the acquired second encoded data in the storage means;
 - 15 a segmentation step of segmenting the encoded data into a plurality of independent encoded data by interpreting header information of the acquired second encoded data;
 - 20 a determination step of determining for each unit segmented in the segmentation step if all encoded data which form the independent encoded data are stored in the storage means;
 - a dummy storage step of storing, when not all encoded data which form the independent encoded data are stored, dummy encoded data in correspondence with non-stored encoded data; and
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an output step of outputting the encoded data stored in the storage means as the JPEG2000 encoded data.

2. The method according to claim 1, further comprising a substitution step of substituting, when it is determined in the determination step that all encoded data which form the independent encoded data are stored in the storage means, the encoded data stored in the storage means by the independent encoded data segmented in the segmentation step.

3. The method according to claim 1, wherein the encoded data are processed for respective packets.

4. The method according to claim 1, wherein the dummy encoded data is zero length packet data specified by JPEG2000.

5. The method according to claim 1, wherein the segmentation step includes a step of segmenting the encoded data into tiles each having a predetermined size.

6. The method according to claim 1, further comprising a change step of changing the header information of each independent encoded data to a size of each tile segmented in the segmentation step.

7. The method according to claim 1, wherein the client further comprises display means for displaying image data, the first encoded data is encoded data of the image data, and said method further comprises:

a setting step of setting the encoded data required in the calculation step in correspondence with movement or enlargement display of a display region of image data displayed on the display means;

5 a decode step of decoding the JPEG2000 encoded data output in the output step; and

 a display step of displaying the decoded image data on a screen of the display means.

8. The method according to claim 1, further
10 comprising a substitution step of directly outputting, when it is determined in the determination step that all encoded data which form the independent encoded data are stored in the storage means, the main header associated with the unit for each unit segmented in the
15 segmentation step, substituting an index of the unit by a predetermined index, and substituting an encoded data main body contained in the unit by the independent encoded data segmented in the segmentation step.

9. The method according to claim 2, wherein the
20 determination step, the dummy storage step, the substitution step, and the output step are parallelly processed for at least two units segmented in the segmentation step.

10. An encoded data generation apparatus in a second
25 computer which comprises storage means that stores fragmentary first encoded data of encoded data managed by a first computer, comprising:

first storage means for storing the fragmentary
first encoded data of the encoded data managed by the
first computer;

calculation means for calculating short second
5 encoded data on the basis of encoded data required to
generate JPEG2000 encoded data in the second computer,
and the first encoded data stored in the storage means;

request means for requesting of the first
computer the calculated second encoded data;

10 acquisition means for acquiring the second
encoded data from the first computer;

second storage means for storing the acquired
second encoded data;

segmentation means for segmenting the encoded
15 data into a plurality of independent encoded data by
interpreting header information of the acquired second
encoded data;

determination means for determining for each unit
segmented by said segmentation means if all encoded
20 data which form the independent encoded data are stored
in said first or second storage means;

third storage means for, when not all encoded
data which form the independent encoded data are stored,
storing dummy encoded data in correspondence with
25 non-stored encoded data; and

generation means for generating JPEG2000 encoded data using the encoded data stored in said first, second, and third storage means.

11. The apparatus according to claim 9, wherein the
5 first and second computers can communicate with each other via a network.

12. A program for making a second computer, which comprises storage means that stores fragmentary first encoded data of encoded data managed by a first
10 computer, generate JPEG2000 encoded data, comprising:

a calculation procedure for calculating short second encoded data on the basis of encoded data required to generate the JPEG2000 encoded data in the client, and the first encoded data stored in the
15 storage means;

a request procedure for requesting of the server the calculated second encoded data;

an acquisition procedure for acquiring the second encoded data from the server;

20 a storage procedure for storing the acquired second encoded data in the storage means;

a segmentation procedure for segmenting the encoded data into a plurality of independent encoded data by interpreting header information of the acquired
25 second encoded data;

a determination procedure for determining for each unit segmented in the segmentation procedure if

all encoded data which form the independent encoded data are stored in the storage means;

a dummy storage procedure for storing, when not all encoded data which form the independent encoded data are stored, dummy encoded data in correspondence with non-stored encoded data; and

an output procedure for outputting the encoded data stored in the storage means as the JPEG2000 encoded data.

10 13. A computer readable storage medium storing a program of claim 12.

14. An image processing method to be executed by an image processing apparatus, which receives, from an apparatus that holds encoded data of an image which is segmented into tiles each consisting of a plurality of logical units and a format of which allows a plurality of different orders of logical units, data of an arbitrary number of logical units required to obtain a desired image for each tile, comprising:

20 a management information generation step of generating management information used to manage respective logical units to be received;

a sorting step of sorting the received logical units in accordance with numbers of tiles to which the respective logical units belong, and also sorting the respective logical units which belong to an identical tile in accordance with an order in that tile; and

a registration step of sequentially appending data of the logical units sorted in the sorting step to the management information, and registering, in the management information, information allocated with
5 locations of data of the respective logical units in the cache data that contains the appended data of the logical units and the management information.

15. The method according to claim 14, wherein the number of the tile to which the received logical units
10 belong and the order of the logical units in that tile are obtained by interpreting header information received prior to reception of the logical units, and data of the received logical units.

16. The method according to claim 14, wherein the
15 management information generation step includes a step of generating management information used to manage a sequence of the logical units according to a progression order of JPEG2000.

17. The method according to claim 14, wherein the
20 registration includes a step of further registering, in the management information, information indicating if the logical units sorted in the sorting step have a serial order in the tile to which the logical units belong.

25 18. An image processing apparatus, which receives, from an apparatus that holds encoded data of an image which is segmented into tiles each consisting of a

plurality of logical units and a format of which allows a plurality of different orders of logical units, data of an arbitrary number of logical units required to obtain a desired image for each tile, comprising:

5 management information generation means for generating management information used to manage respective logical units to be received;

 sorting means for sorting the received logical units in accordance with numbers of tiles to which the
10 respective logical units belong, and also sorting the respective logical units which belong to an identical tile in accordance with an order in that tile; and

 registration means for sequentially appending data of the logical units sorted by said sorting means
15 to the management information, and registering, in the management information, information allocated with locations of data of the respective logical units in the cache data that contains the appended data of the logical units and the management information.

20 19. A program for making a computer execute an image processing method of claim 14.

20. A computer readable storage medium storing a program of claim 19.